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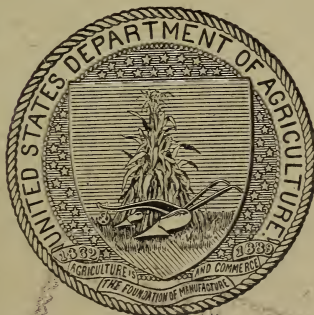
A. C. TRUE, Director.

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# AGRICULTURAL INSTRUCTION FOR ADULTS IN CONTINENTAL COUNTRIES.

BY

JOHN HAMILTON,  
FARMERS' INSTITUTE SPECIALIST.



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## U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF EXPERIMENT STATIONS—BULLETIN NO. 163.

A. C. TRUE, Director.

AGRICULTURAL INSTRUCTION FOR ADULTS  
IN CONTINENTAL COUNTRIES.

BY

JOHN HAMILTON,  
FARMERS' INSTITUTE SPECIALIST.WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
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## LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF EXPERIMENT STATIONS,  
*Washington, D. C., October 12, 1905.*

SIR: The following bulletin on Agricultural Instruction for Adults in Continental Countries, by John Hamilton, farmers' institute specialist of this Office, has been prepared with a view to directing the attention of farmers' institute workers to the methods that have been adopted and found useful by continental governments in affording educational facilities to their adult agricultural population.

The bulletin is in effect a supplement to one (No. 155) recently issued by this Office on Agricultural Instruction for Adults in the British Empire, and is in compliance with a requirement of the act of Congress making provision for the appointment of a farmers' institute specialist in the Department, and defining his duties to be "to investigate and report upon the organization and progress of farmers' institutes in the several States and Territories, and upon similar organizations in foreign countries."

The manuscript is recommended for publication as Bulletin No. 163 of this Office.

Respectfully,

A. C. TRUE,  
*Director.*

Hon. JAMES WILSON,  
*Secretary of Agriculture.*



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# AGRICULTURAL INSTRUCTION FOR ADULTS IN CONTINENTAL COUNTRIES.

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## INTRODUCTION.

In most continental countries the majority of the population are engaged in agriculture, and in a number as much as 75 per cent depend directly upon farming for their livelihood. It is to be expected, therefore, that where so large a portion of the population is engaged in this industry special attention would be given by the governments of these countries to the interests of the farming people. In many of them the virgin lands were long ago occupied, and now no new soil is to be had except such as may be wrested from the sea, reclaimed from swamps, or taken from the desert.

Because of this restricted area of cultivated land, it was quite manifest that unless some means could be devised by which the same soil century after century could be brought to produce crops with unfailing regularity and in constantly increasing abundance, the country must eventually become uninhabitable and the State consequently cease to exist, for it is an historic fact that only nomadic tribes can live in a region where agriculture has ceased to be a profitable pursuit. All of this has been so generally understood and appreciated by foreign nations that long ago their governments gave most careful attention to the subject of animal and plant production, with the result that without exception they have reached the conviction that the only solution of the question of improving agriculture sufficiently to enable those who pursue it as a calling to maintain themselves in comfort for all time to come, and also to produce a surplus for use by those engaged in other occupations, lies in the proper education of those who conduct its operations.

Accordingly schools and colleges of agriculture were established in some countries more than a century ago, and now few foreign nations are without institutions established and in part or altogether maintained by the State for the purpose of discovering agricultural truth and for disseminating this truth among the masses. In many of them the number of such institutions runs into the hundreds.

No more interesting or significant feature is brought out in the study of the agriculture of foreign lands than the fact that in every country all of the people—the peasantry, the landed proprietors, as well as those who administer the laws—now look to their agricultural educational institutions not only for the solution of present problems in production, but also for the discovery of new facts and new methods that will insure increased and more profitable crops in the time to come.

The sincerity and strength of this sentiment is shown in the measures that have been adopted by the governments of these countries for the perfecting of their systems of agricultural education, as exhibited in the statements which appear in this bulletin. State departments of agriculture have been established and equipped with expert officials who devote all of their time to the interests of agriculture. Universities, colleges, normal schools, academies, secondary schools, common schools, and numerous special classes are everywhere in operation, and in almost all of them the giving of instruction in agriculture is made obligatory. In most countries these institutions are aided and in a number are wholly supported by the State. The governments also encourage the formation of local agricultural organizations, such as cooperative associations for special purposes, societies for holding agricultural shows, credit societies, agricultural insurance companies, etc., and in most cases grant them financial aid.

The attention of farmers' institute workers is particularly called to some features of the work abroad that are characteristic and specially worthy of careful consideration.

The first is the extreme care with which the itinerant instructors in foreign countries are selected. In two countries the age qualification is an important item, no one being accepted under 25 years. In several a competitive examination is required to be held by a committee of experts, and only those passing are permitted to be employed. In every country some special qualification is necessary before the institute teacher can enter upon this service.

Another point worthy of attention is the method of supervision that exists in every country. There is everywhere a central supervisory authority which holds the local officers and institute teachers and workers to strict account for the efficiency and success of the work.

A third important item is the system of personal visitation by specialists made to farms and communities for the purpose of giving assistance through expert advice. In France particularly this feature of the work is emphasized, and its effect is seen in what that country has done since this form of aid was undertaken.

Attention is also called to the various methods in use in disseminating agricultural information. There is, first of all, the itinerant lecturer, who meets audiences of farmers and delivers one or more addresses, much as is now done in the farmers' institutes of the United States.

There is also the specialist, who conducts a movable school which is located in a community for two or three weeks and then is transferred to another center where a similar class is formed and the instruction repeated. Then there is the winter school, located in a rural community and continuing for several months, to which only adults are admitted. There are also agricultural high schools which only farming people who have had previous practical experience of at least one year upon a farm and considerable preliminary education can enter.

The system of support for the itinerant schools and for the lecturers is also worthy of careful study, as are also the methods adopted for securing the cooperation of local communities in the work of institute instruction. There are likewise the demonstration farms and fields organized by a central board having charge of the institute system of instruction, over which the itinerant institute teacher is placed, and which are used for instruction purposes in connection with the institute work in the several communities. Attention is specially called to the interest manifested and the part taken by the higher institutions of learning, especially by the universities and agricultural colleges, in itinerant instruction.

There is also the teaching of agriculture in the common schools made compulsory in most countries, and accompanied by the use of school gardens and experiment grounds for purposes of practical training and demonstration. Last of all, but by no means the least suggestive, there is the use of the monthly publication, edited and issued by the State as an official medium for disseminating agricultural information, free of cost, among the members of the farmers' institute societies of the country, keeping them informed with respect to the work of the various societies in their own as well as in other States.

### AUSTRIA.

The distinguishing features of the farmers' institute system of Austria are briefly stated by the Austrian minister of agriculture in the following communication:

The establishment of itinerant agricultural instruction in Austria is not very recent and the system in operation is regarded as an important factor in the professional education of the agricultural population above school age and is of especial value in those parts of the country not provided with agricultural schools.

This instruction is generally given by professional itinerant teachers of agriculture, appointed by the State, by the provincial administrations, or by the principal agricultural corporations in the different dependencies and provinces, but experts in the different lines of work closely connected with agriculture and agricultural pursuits are also employed for this purpose. The lectures are usually delivered at the meetings of agricultural societies, at agricultural expositions, stock shows, etc.

The professional itinerant teachers receive a fixed remuneration for their services, including the salary and a lump sum for traveling expenses, amounting annually to from \$720 to \$960. The teachers appointed by the State are paid from the State treasury,



while those appointed by the provincial administrations and agricultural corporations receive their remuneration from the funds of the particular province or the private funds of the corporation. The provincial administration as well as the agricultural corporations receive annually very important subsidies from the State for the purpose of maintaining their itinerant agricultural instruction. The remuneration of the professional expert is adjusted for each particular case and the amount is governed by his standing in the line of work he represents and by the time he is employed.

This instruction does not always consist of single lectures, but very frequently courses of lectures lasting several days, and even weeks, on widely different phases of agriculture, are given. In this connection the courses on dairying, viticulture, orcharding, etc., may be mentioned as enjoying special popularity. These special courses are usually given under the auspices of local agricultural societies, which draw for this purpose adequate subsidies from State and provincial funds.

The special duties of the itinerant agricultural teachers, especially of those appointed by the State and following the work as a profession, are usually outlined in the contract or by particular rules relating to the service, and generally particular stress is laid upon keeping in touch with the agricultural population of the district and studying the wants and needs of the farmer instead of limiting themselves to delivering lectures and giving instructions at regularly appointed times.

Complete statistics on this phase of agricultural education can not be given, because the data of the ministry of agriculture are limited to those lectures and courses for which provision has been made by the State or General Government. Reports on particular courses frequently appear in the agricultural press of the country, but they are so numerous and so scattered that a compilation of them with a view to covering the field is a matter of great difficulty.

### BELGIUM.

There is an agricultural society in each province in Belgium, in addition to the Central Agricultural Society of the Kingdom. Each of the provincial societies holds annually an agricultural show or fair, and a number of them have organized lecture courses upon agricultural subjects, conducted by expert agriculturists who visit the various sections and give instruction upon subjects arranged under the following classification: (1) Agriculture for adult farmers and farmers' wives; (2) agriculture for soldiers; (3) farriery; (4) arboriculture and market gardening; (5) apiculture; (6) aviculture, and (7) miscellaneous lessons and special lectures. There are also movable dairy schools for women.

The movable schools in agriculture were begun in 1887. Since the organization of these courses up to 1903 3,643 lectures have been given, attended by 163,055 pupils. In 1902 schools for women were introduced, the lectures treating on household economy, hygiene, dairy farming, household and farm bookkeeping, aviculture, gardening, and the canning and preserving of fruits. During that year 16,312 persons attended these schools of domestic economy.

## AGRICULTURE FOR ADULT FARMERS AND FARMERS' WIVES.

The courses of lectures given in the schools for farmers embrace the following subjects: The soil; seeds and their germination; agricultural hydraulics; elements of agricultural physiology and chemistry; special crops; cattle foods and feeding; hygiene; zootechny; dairying; agricultural bookkeeping; rural laws; rural economy; mutual insurance and cooperation; and agricultural institutions.

## COURSES OF LECTURES IN AGRICULTURE FOR SOLDIERS.

Instruction in these courses follows practically the same outline of subjects as that given to farmers, except that instead of 30 lectures being delivered as in the case of farmers, the soldiers' course is limited to 22.

The taking of these lectures by the soldiers is entirely voluntary, those who attend not being exempted from any of the regular military duties. Rewards are offered by the agricultural department to those soldiers who obtain the most marks in a special examination on agricultural subjects, and on the recommendation of the lecturer agricultural books are given to the pupils who are most attentive. The reports show that during the last three years 86 courses of lectures have been given to soldiers, and that these have been attended by 2,195 men.

## COURSES OF LECTURES IN FARRIERY.

Classes of pupils in farriery are organized every year and instruction is given, beginning early in January, continuing through twelve lessons. Four of these lessons are reserved for giving practical demonstrations in horseshoeing. The pupils are required to pass an oral and also a practical examination before a commission composed of the veterinary inspector, the State agriculturist of the district, and the professor in charge of the course. Certificates of proficiency are given to those only who obtain at least five-tenths of the marks allotted to the theoretical examination, and six-tenths of those allotted to the practical examination. This certificate admits the pupils to the Central Practical Farriery School at Brussels.

Before a course of lectures on farriery can be organized at least twelve pupils must have registered their names, agreeing to attend the entire series of lectures.

## COURSES OF LECTURES IN ARBORICULTURE AND MARKET GARDENING.

The programme of the course in arboriculture and market gardening consists of fifteen lectures in arboriculture and a number of lessons in market gardening. The communal municipalities or the horticultural societies who ask for these lectures must agree to furnish a sufficiently

large room for class purposes and a moderate-sized fruit garden, placing them at the disposal of the lecturer. The courses are only given where an attendance of at least 20 is guaranteed. Examinations are held, and to those who pass certificates are awarded by the board of examination. Between 1895 and 1903, 1,628 pupils have been up for this examination, of whom 731 obtained certificates for arboriculture and 104 for market gardening.

#### COURSES OF LECTURES IN APICULTURE.

Until 1902 lectures upon apiculture were equally divided among the districts where members of apicultural societies existed. From that date these lectures have been given in a series of at least five in the same locality. During the last three years 1,574 lessons have been given and the courses were attended by 3,000 persons.

#### COURSES OF LECTURES IN AVICULTURE.

Four or five lectures comprise the course on aviculture. The first course on this subject was prepared by the inspector of agriculture, and required that the lecturers should pass an examination before being permitted to give instruction. The courses at present are prepared by the various societies interested in the subject. The popularity of the study is shown by the fact that during the past three years 924 lessons were given and the courses were attended by about 20,000 pupils.

#### SPECIAL LESSONS AND SPECIAL LECTURES.

In addition to the foregoing courses, the department of agriculture has granted subsidies providing for a certain number of special lessons, as upon the choice and feeding of dairy cows; lessons in agricultural chemistry; agricultural bookkeeping; lectures on the natural sciences in their application to agriculture, etc. Eight hundred and fifty lectures of this character have been given during the last three years, the courses all having been organized by the local agricultural associations.

#### MOVABLE DAIRY SCHOOLS FOR WOMEN.

On a Belgian farm the farmer's wife looks after the dairy. For this reason the teaching of the feeding and care of cattle and the elements of dairy farming have been made a feature in the movable dairy schools for women. These dairy schools are movable, changing their location from one agricultural district to another once every three months. The first school was founded in 1890, and at present ten are reported as being in active operation.

The establishment of the movable dairy school is usually made at the request of the local agricultural associations, and is supported either directly by the State or through the provincial association of the district. The teaching is both theoretical and practical. Instruc-

tion is given every day except Sundays, two hours being devoted to the study of the theory and three hours to practical work. The number of pupils is limited to 20, and the attendance at the course is free of charge. A Government grant of 2,000 francs is awarded to these schools for a three-months' course. The applicant must be at least 15 years old, possess a good elementary education, and be in physical condition to do the work taught in the schools. Since the foundation of the school in 1890, over 2,000 diplomas have been awarded. The course at present lasts for four months, and the teaching of domestic economy and aviculture has been included in the programme.

In addition to the system of direct instruction given through the movable schools, every agricultural district committee in Belgium is authorized to establish at the expense of the Government two fields each year for experiments and demonstrations in agriculture, one to be used for spring crops and the other for autumn planting. The fields are limited to one-half acre each in area. The character of the experiments is determined by the delegate appointed by the district committee, conjointly with a State agricultural expert. The latter determines the varieties of seed, roots, or manures to be experimented with. This committee selects the agriculturist upon whose land the field is to be established, and, inasmuch as the fields are intended to supplement the theoretical instruction given in the movable schools, they are usually located in proximity to the centers at which these schools are held.

The farmer upon whose estate the field is established must place at the disposal of the committee half an acre of land gratuitously, and agree to treat the soil according to the direction of the committee, also to furnish gratuitously the necessary farmyard manure. The department of agriculture supplies free of charge the seeds, roots, and chemical manures. The State expert prescribes the character of the cultivation to be followed and gives specific directions for the care of the crop, to which directions the farmers must agree to conform. The crop, when raised, is the property of the cultivator, excepting that the State expert can take samples if he wishes to do so.

In addition to the foregoing, the cultivator agrees to grow in the following year at his own expense the variety of crop which shall have yielded the best returns as regards quality and quantity.

A similar decree exists respecting the establishing of gardens for experiment purposes in connection with each provincial agricultural society. These gardens are to be used for the growing of new varieties of seeds, roots, etc., with the understanding that the varieties recognized as good shall be distributed throughout the province by means of the fields for experimentation established in each agricultural district.



## BULGARIA.

The three agricultural colleges and the three agricultural experiment stations of Bulgaria employ and send out itinerant teachers through the country districts to hold schools continuing for from one to two weeks, confining the instruction in any one school to a single topic, as dairying, apiculture, forestry, etc.

The itinerant teachers connected with the agricultural colleges and experiment stations are employed for the special purpose of conducting institute schools. When not engaged in this rural teaching the work is given them at the college or experiment station.

## DENMARK.

The remarkable progress of agriculture in Denmark and its present high state of development are due to the careful attention which that country has given to the education of her farming people.

Denmark, excluding the Faroe Islands, has an area of only 14,789 square miles—about half as much as the State of Maine or almost exactly the size of Maryland and Connecticut combined. The population of Denmark in 1901 was 2,447,441; that of the two States last named was 2,096,464 in 1900.

The commercial importance of the Kingdom lies almost wholly in her agriculture, which in the last thirty years has risen from about the lowest to the highest place among the countries of Europe. In 1860 the British vice-consul at Copenhagen reported that "the butter, or the articles sold in the market by the yeomen-farmers under that name, is execrably bad." At present "Danish butter," "Danish bacon," and "Danish eggs" stand in price and quality at the top in the English markets.

Mr. Gill (secretary of the department of agriculture for Ireland), after a careful inspection of Danish methods, states that "what may be termed the essentials of agricultural progress are illustrated there, namely, (1) highly trained intelligence, enterprise, and resourcefulness; (2) the power given to the farmers by organization; and (3) the effectiveness with which the Government is able, chiefly through these organizations among farmers, to aid them with expert advice, technical instruction, and material support."

Inasmuch as Denmark is perhaps the most conspicuous example of what education of the rural people can do for the commercial development of a country, it may be well to present in some detail the system that has wrought the change that has taken place in this Kingdom in recent years.

## UNIVERSITY.

At the head of the entire educational system is the Royal University at Copenhagen, with an attendance of over 1,300 students.

There is, also, the Royal Agricultural and Veterinary College of Copenhagen. This institution dates back to 1773, and was known as the Royal Veterinary School, to which there was added in 1856 a course of instruction in agriculture, and its name changed to that of The Royal Agricultural and Veterinary College. The institution is controlled and supported entirely by the Government. In addition to this central college there are 21 agricultural and horticultural schools in the country, with a total attendance of about 4,000 students.

#### EXPERIMENT STATIONS.

In addition to these institutions there are four experiment farms for research in agriculture, and over 500 demonstration fields distributed over the country for testing varieties of grains and forage crops, determining the value of various manures, the best methods of soil treatment, etc.

#### PEOPLE'S HIGH SCHOOLS.

There are also 78 people's high schools, with a reported attendance of about 6,000 students. These people's high schools originated in Denmark in 1844. They were founded by patriotic farmers who wished to create more interest in the national life on the part of the young men and women of the rural districts.

Admission to the schools was limited to persons over 18 years of age, who were required to have had experience in practical farming extending over at least one year. There were taught at the first in these schools the usual subjects of study found in the scheme of general education of that period, excepting that special attention was given to the study of the history and literature of Denmark, and the students were in addition made acquainted with her lyric poetry and popular songs. Later, studies in agriculture were added until now the courses of many of the schools are made up chiefly of such branches of science as relate to some phase of agricultural production.

The five winter months are devoted to the teaching of men, and the three spring and summer months to giving instruction to women.

#### COMMON SCHOOLS.

There are also the common rural schools that children from 7 to 14 years of age are obliged to attend.

#### COOPERATIVE SOCIETIES.

Another notable feature of the industrial system of Denmark, and it is in great measure the outgrowth of the educational methods that have been adopted, is the system of cooperative societies. In 1903 there were 3,556 cooperative agricultural societies in Denmark, with a membership of 509,424; horse-breeding societies, cattle-breeding

societies, swine-breeding societies, milk-control unions, egg-collecting societies, societies for the purchase of feeding stuffs and manures, cooperative abattoirs, loan societies or credit banks—all on the cooperative plan.

#### LOCAL AGRICULTURAL SOCIETIES.

There are in addition 107 local agricultural societies, with a membership of 64,800. These local societies hold shows during the summer and have meetings for discussion during the winter. They also engage the services of experts to give advice to their members on farming matters, and some of them engage itinerant lecturers. Every fifth year these societies join with the Royal Agricultural Society in a national fête, consisting of a show, discussions, and excursions, continuing for five days. The societies of each province also have united into what are known as provincial unions. These unions hold yearly exhibitions.

The State aids all of these organizations. The amount averaged \$450 to each local agricultural society in 1903, but the subsidies thus given are only in aid, and to be available must be supplemented by private subscriptions by the membership.

#### ALLIED AGRICULTURAL ORGANIZATIONS.

The form of alliance that exists among the agricultural organizations is fully and concisely stated by Dr. Herbert G. Smith in a paper read before the Cobden Club in 1901. In speaking of the organizations of Denmark he says:

Chief among them is the Royal Danish Agricultural Society, founded in 1769, an organization which best represents the general agricultural opinion of the country, and which is the principal adviser of the Government in agricultural matters. It administers large sums on behalf of the Government, and also controls a large number of expert and other officers of the State. Its members may be classified as follows: (1) Individual members; (2) local agricultural cooperative societies; and (3) provincial unions or federations of local societies. Varying fees are paid by the members, which fees, with the Government grant, form the income of the Royal Danish Agricultural Society. A council of 36 members, with 3 presidents, forms the ruling body; 18 members of this council are elected by the local agricultural societies, and 18 by the individual members of the society. The number of local agricultural societies was (in 1895) 101, the average membership of each society being about 500. A whole county is sometimes represented by one society, while in other cases a group of parishes form a society. The larger parishes often contain four or five societies. The majority of these local societies have become federated into provincial unions, of which there are four—one for each province. Most of the members of the local cooperative societies are members both of their provincial union and the Royal Danish Agricultural Society.

In each province, in the autumn, a congress is held, to which delegates from the local societies are sent, and at which the agricultural interests of the province are discussed, and local opinion is formulated. Resolutions relating to measures which affect agriculturists are forwarded to the Government, which, as already said, consults the Royal Danish Agricultural Society in agricultural matters.



The provincial unions, however, being of opinion that the Royal Danish Agricultural Society does not, as at present constituted, sufficiently represent the general body of agriculturists, have created a council, composed of the presidents and vice-presidents of the provincial unions; for this council a position similar to that of the Royal Danish Agricultural Society, as adviser to the Government, is claimed. It is interesting to note that over half of the members of the Danish Parliament are peasant proprietors, and many of them have been educated at the high schools.

The Royal Danish Agricultural Society assists and acts as an intelligence department for the widely extended system of cooperative societies which are not yet affiliated to itself. As, however, the chief members of these societies are also members of the local affiliated societies and of the Royal Danish Agricultural Society, these unaffiliated societies in reality form a part of the cooperative organization of the country. The various local societies may be classified as follows: (1) Cooperative societies for bacon curing; (2) cooperative societies for collecting and exporting eggs (federated in 1895 into a large central society); (3) cooperative societies for breeding and rearing cattle, pigs, and horses; (4) cooperative dairy societies (about 1,200 in number); (5) cooperative bee-keeping societies, and (6) cooperative horticultural and fruit-growing societies. These societies are generously helped by the provincial unions and the Royal Danish Agricultural Society.

#### SYSTEM OF EXPERTS.

One of the most useful adjuncts to Danish agriculture is the system of employing experts who have proved very efficient in imparting scientific knowledge to farmers, and introducing uniform principles into agricultural production. In 1903 there were 25 of these experts in all, who cost the State over £8,000 per annum. In addition there were 27 experts appointed by the local agricultural societies, and partly paid by the State. The gratuitous advice of these experts can be obtained through the Royal Danish Agricultural Society. The 1,200 cooperative dairies, for instance, are frequently visited by them and repeated tests made on the relative qualities of the butter, etc., of the various dairies, the decision being communicated to all.

Danish experts also permanently reside in foreign countries for the purpose of keeping the Danish societies constantly informed of the requirements of foreign markets for agricultural produce.

As a striking instance of the advantages of organization, the following fact may be given: Recently it was considered desirable to introduce Yorkshire pigs into Denmark to improve the breed there, and a swine expert was sent to England, accompanied by representatives of the local Danish societies. Large purchases were made on behalf of both the Royal Danish Agricultural Society and the local societies, the expenses of the expert being contributed to by the Cooperative Bacon Curing Society and the Royal Danish Agricultural Society. Thus each Danish farmer was able, at a comparatively nominal expense to himself, to improve his swine.

#### MOVABLE AGRICULTURAL COURSES.

The feature of agricultural instruction in Denmark which corresponds most nearly to the system of agricultural institutes of the United States is the movable agricultural courses. These courses were originated by private initiative. The following statement, furnished by the Danish minister, shows the method of their operation:

Every year the cooperating agricultural societies publish that they are willing to organize "movable courses" if a certain payment, suitable rooms for the teaching, and good maintenance for the teachers are guaranteed. When these conditions are

complied with the details as to time, etc., are settled directly between the applicants and the director of the course. There is no State official in charge of this work, but it is directed on behalf of the cooperating societies by the head master of the agricultural school at Lyngby, Sealand. He receives \$216 a year from a private institution to superintend the work.

The director asks as many as possible of the experienced teachers of the agricultural schools and others, such as agricultural government advisers, veterinarians, etc., to act as lecturers. In 1903 twenty to thirty answered his call. To each course are detailed two or three lecturers, of whom one has taken part in former courses and is the head lecturer of the course.

Each course lasts two weeks, i. e., twelve days, with three lectures of forty minutes a day, and daily instruction in agricultural bookkeeping of seventy-five minutes. During the second week the lessons are followed by debating and question hours.

The lecturers are chosen by the director with due regard to the wishes of the pupils.

The lecturers get free transportation and all expenses. They are guaranteed \$19 for one lecture a day and \$26 for two.

Each member of the course pays a fee varying from \$2 to \$2.70, according to the number of members. They further pay 80 cents to \$1 each for ledgers for book-keeping, room, etc. If the fees exceed the expenses, the excess is divided between the lecturers.

From 1898 to 1902 all expenses were covered by the fees. From 1902 the Government has allowed \$1,350, and from April 1, 1904, it has increased the amount to \$2,700, to assist poor agriculturists to follow the courses.

The lecturers have other occupations, and they often only give lectures on one or a few of the courses.

During the year April 1, 1903, to March 31, 1904, twenty such courses were organized; more were requested, but could not be organized, owing to lack of lecturers. The courses were attended by 25 to 75 persons, or on an average by 50, which for 20 courses gives a total of about 1,000.

The cost for the students of each course was \$80 to \$100, exclusive of expenses for books, etc.

## FRANCE.

The duty of providing instruction in agriculture for the people in the rural districts of France is recognized by the State, and has been made an important part of its system of public instruction. The primary and secondary schools, as well as the higher institutions of learning, are all required to teach this subject, the instruction varying in amount according to the grade of school and degree of preparation of the pupils.

The important place that agriculture occupies in the life of the French people is shown by the number engaged in this occupation. In a population of 38,517,975 in 1896, 6,600,000 were farmers, occupying 5,702,752 separate farms. A great majority of these farmers till comparatively few acres, 97 per cent of the farm properties in France consisting of less than 100 acres.

The work of giving agricultural instruction is thoroughly systematized, and arranged to reach all of the workers and their children with valuable information relating to their occupation. At the head of the system is the minister of education and fine arts, who is clothed with

powers that enable him to hold all subordinates engaged in giving instruction to strict accountability for the efficiency of their work.

The civil divisions of France are, first, the commune, which is the elementary unit and varies in size according to the density of population in the locality. There is next the canton, made up of a number of communes, usually about 12. Then there is the arrondissement, composed of 8 cantons; and, including all of them, there is the department, made up of 4 arrondissements.

For school purposes the country is divided into 16 educational districts called academies. At the head of each academy is a rector, and at the head of each civil department constituting the academy is an academy inspector. Subordinate to these are the primary inspectors. The law also requires that there shall be, in each of the 87 civil departments into which the country is divided, at least one normal school for the preparation of teachers.

The giving of instruction in agriculture in all of the schools embraced by this educational system is made obligatory by the State. The studies to be taken up and the courses of lectures to be delivered must be approved by the minister of agriculture and commerce before they can be undertaken in any school. As a consequence the courses of instruction throughout the Republic, in all of the schools, even the most elementary, are systematically arranged and have been critically considered by capable authorities and formally approved by the minister and council of education.

#### DEPARTMENTAL AND SPECIAL PROFESSORS OF AGRICULTURE.

In the law reorganizing departmental and communal instruction enacted in 1879 it is directed that each "department," of which there are 87, shall be provided with one "departmental professor of agriculture," who is to be at least 25 years of age and is to be appointed from among the successful candidates who have passed a competitive examination for this position. The examination is written, oral, and practical; is arranged by the minister of agriculture and commerce in cooperation with the minister of public instruction and fine arts, and includes the different branches of agricultural science.

The departmental professors are divided into four classes according to salaries, as follows: First class, \$877; second class, \$780; third class, \$682, and fourth class, \$585. The first appointment is always made at the lowest salary and a promotion to the next higher class requires at least three years' service.

These departmental professors are the chiefs of the agricultural service in their departments. They represent the administration of agriculture and are under the direct authority of the prefect of the department and of the inspector of agriculture. They have under



their direction the "special" professors of the department, to whom, however, they leave the greatest possible latitude and initiative.

It is the duty of the departmental professor to give a two-years' course of instruction in agriculture at the normal primary school for teachers established in his department, and if necessary in other establishments of public instruction; to deliver at least 26 lectures upon agricultural subjects each year at meetings of farmers, and to disseminate by lectures and other means the scientific discoveries and practical methods which tend toward the intelligent and profitable management of the soil. It is also their duty to stand in close relation to the agricultural societies and syndicates in order that they may act as advisers to those interested in agricultural questions, and to come in contact as freely as possible with the rural classes. In this way they are expected to keep themselves posted on the current wishes and needs of the agricultural people. Each departmental professor is required to make report at the close of each year to the prefect of the department in which he resides, to be transmitted to the minister of agriculture and commerce of the Republic.

There is another feature of the work of the departmental professor that has been of great value in enforcing his teachings, both in the normal schools and in the meetings in the rural districts which he addresses. It is the system of practical demonstration that he conducts in fields selected in various suitable locations in which are shown the effects of various manures, modes of culture, and varieties of seeds upon crop production. It is stated that in 1894 there were over 3,300 such fields being conducted for illustration purposes throughout France.

#### SPECIAL PROFESSORS OF AGRICULTURE.

The duties of the special professors are in most respects similar to those of the departmental professors, with whom they are expected to cooperate. They are expected to teach agriculture in the superior primary schools, and also to deliver at least 12 lectures annually at rural meetings of agricultural people, the object being to make known to practical farmers the improved methods in use in the management of domestic animals, and which lead to a more profitable production of farm crops. Their salaries vary from \$450 to \$580 per year.

The items in the law relating to departmental and communal instruction in agriculture, and in the decree by the President of the Republic, relative to the departmental and special professors of agriculture, give with great particularity the details of the system of itinerant instruction in agriculture in operation in France. In order that those who are interested in the study of this system may have reliable information at hand, the law and decree are given in full.



*Law of June 16, 1879, relative to the departmental and communal instruction in agriculture in France.*

ARTICLE 1. Within a period of six years following the promulgation of the present law a chair of agriculture shall be established, in accordance with the following rules, in the departments not already possessing this institution.

The programme of instruction shall include all branches of agricultural industry, and more specially the study of the methods of cultivation of the region.

ART. 2. The departmental professors of agriculture will be chosen by competition, and upon the report of a jury selected by the minister of agriculture and commerce, and constituted in the following manner:

- (1) The inspector-general of agriculture, president;
- (2) The inspector of the academy;
- (3) A professor of chemistry or physics;
- (4) A professor of natural sciences.

These two last examiners will be chosen from the teaching staff of the agricultural institute or of an agricultural school, and, in their default or absence, they must belong to the State university.

(5) A professor of the veterinary college or of the nearest school of medicine, or a certificated veterinary surgeon.

(6) Three agriculturists, chosen by the departmental commission from among the members of the agricultural associations of the department, who are nominated by each of these associations.

(7) A councilor-general, designated by his colleagues.

The professors of agriculture will be appointed by an order concerted between the minister of agriculture and commerce and the minister of public instruction and fine arts.

ART. 3. The competition will take place at the chief town of the department; the examination will turn upon the general principles of agriculture, vine growing, arboriculture and horticulture, and on the sciences in their application to the situation, the productions, and the climate of the department.

ART. 4. The programme of the competition will be decided upon by the ministers of agriculture and public instruction, in accordance with the advice of the agricultural associations and the general council of the department.

ART. 5. The candidates must (in order to be admitted to the competition) be Frenchmen, and be at least 25 years of age. If they can produce the diploma of bachelor of science, or that of the agricultural institute, or of an agricultural school, a certain number of marks fixed by the minister of agriculture will be allowed to them.

ART. 6. The professors of agriculture must give lessons at the normal primary school (near to which they ought to reside, if this is possible), also at other establishments of public instruction where they are required, and they must give agricultural lectures in the different communes of the department to the teachers and agriculturists of the region.

ART. 7. The salary of the departmental professor of agriculture will be paid from the funds of the budget of the ministry of agriculture and from those of the budget of the ministry of public instruction.

The expenses of the journeys will be chargeable to the department.

ART. 8. The functions, as also the dismissal, of the departmental professors of agriculture will be determined by public administrative enactment.

The order in question will determine the salary of the departmental professors.

It will also fix the minimum expenses of the journeys of the professors of agriculture with reference to each department in accordance with the advice of the general council.

ART. 9. The professors of agriculture already actually employed, whether they have been nominated after competition or not, will not have to undergo the test of a new competition.

ART. 10. Three years after the complete organization of agricultural instruction in normal primary schools elementary instruction in agriculture will be included in the obligatory subjects of primary education.

In those departments, however, in which instruction in agriculture has already been organized at the normal primary school for more than three years, the departmental council of public instruction may decide whether this same instruction shall be compulsory in all the primary schools of the department.

The programmes of this instruction in each department will be drawn up after consultation with the departmental council of public instruction.

*Decree of June 9, 1880, relative to the departmental professors of agriculture in France.*

ARTICLE 1. Each competition to be opened in a department for the appointment to the functions of departmental professor of agriculture is to be announced three months beforehand by the insertion of a notice in the official journal.

Within two months, dating from the insertion of this notice, the candidates must address their demand to be admitted to the competition either to the ministry of agriculture and commerce, or to the prefecture of the department where they reside. With their demand they must send in a certificate of birth, a certificate of good conduct and behavior, and a statement setting forth their antecedents, their titles, and their scientific works.

ART. 2. The minister of agriculture and commerce prepares the list of candidates admitted to the competition.

This list is definitely decided upon in concert with the minister of public instruction and fine arts.

ART. 3. The jury is to meet on the day fixed by the order of the minister of agriculture and commerce, by whom it has been constituted, to examine the papers of the candidates and to settle the order of the examination tests.

ART. 4. The competition comprises three sorts of tests:

A written test, oral tests, and practical tests.

The programme of the competition, drawn up as set forth in article 4 of the law of the 16th of June, 1879, is published in the official journal, with the notice prescribed in article 1 of the present order.

ART. 5. The official report of the operations of the jury is to be addressed, together with the papers of the candidates, to the minister of agriculture and commerce, who transmits them to his colleague, the minister of education and fine arts, together with a scheme for the issue of the appointments.

The original of the scheme must be deposited at the ministry of agriculture and commerce.

ART. 6. The departmental professors of agriculture can be dismissed by either one of the two ministers, after notice to his colleague.

The decision leads to the complete dismissal of the functionary.

ART. 7. The salary of the departmental professors of agriculture is paid as follows: Half from the funds of the budget of the ministry of agriculture and commerce, and half from that of education and fine arts.

ART. 8. The departmental professors of agriculture are divided into four classes, the salaries of which are fixed as follows:

First class.....	\$871.20
Second class.....	774.40
Third class.....	677.60
Fourth class .....	580.80

The first nomination is always to the fourth class.

The transfer from one class to that immediately above it can only take place after three years' service at least.

This promotion is decided upon by the two ministers (of agriculture and commerce and of education and fine arts).

ART. 9. The costs of the journeys of the departmental professor of agriculture, to be charged to the department by article 7 of the law of June 16, 1879, are fixed in each department by the general council, but they must not be less than the sum of \$96.80 annually.

This expenditure must not be deducted from the funds appropriated to the service of primary education.

ART. 10. The departmental professors of agriculture are especially appointed for the department in which they have competed. They may, however, be called upon, in consequence of an order arranged between the two ministers, to remove into another department in which the conditions of agriculture are analogous.

ART. 11. Departmental professors of agriculture, who accept elective appointments in the departments to which they have been nominated, are considered to have resigned.

ART. 12. The duties of the departmental professor of agriculture are comprised in the conditions set forth in the following articles:

(1) Agricultural instruction in the normal primary school and, if necessary, in the other establishments of public instruction.

(2) Agricultural lectures in the country districts.

(3) Works or investigations with which he may be intrusted by the prefect of the department or by the minister of agriculture and commerce.

ART. 13. The programme of the course given at the normal primary school is promulgated by the minister of education and fine arts, the superior council of public instruction approving, after consultation with the minister of agriculture and commerce.

This course is to be followed by pupils of the second and third years. It is based on two lessons a week, supplemented by a practical exercise or an agricultural excursion.

ART. 14. The agricultural lectures in the country are to be delivered according to a programme decided upon each year by the minister of agriculture and commerce. There are to be at least twenty-six in each year. The localities in which they are to take place will be decided upon by the prefect.

ART. 15. A report of these lectures is to be addressed by the professor at the end of each year to the prefect of the department, to be transmitted to the minister of agriculture and commerce, and also to the general council of the department.

ART. 16. Independently of the duties specified in the preceding articles, the departmental professor of agriculture is to furnish to the prefect all possible information respecting the agriculture of his department.

ART. 17. The ministers of agriculture and commerce and of education and fine arts are charged, each one as far as he is personally concerned, with the execution of this decree.

## HUNGARY.

Hungary has an area of 125,039 square miles of territory, and had a population in 1900 of 19,254,559, about 75 per cent of whom are engaged in agriculture. Many of the estates of the nobles embrace as much as 500,000 acres; holdings by the peasants range from one-half acre to more than 100 acres. In 1895 it was estimated that 48.5 per cent of the arable land was included in holdings of from 5 to 100

acres. The small farmers, for purposes of cultivation, add to the area that they own in fee portions of adjoining estates, which they lease, and for the use of which a money rental is paid.

In Hungary the State has assumed responsibility for the development of her agriculture to a greater extent than in any other European country. The State has organized, controls, and supports a system of colleges, schools, demonstration and research stations for instruction in agriculture that is remarkably complete.

There is, first of all, the agricultural college at Magyar-Óvaf, in which higher teaching in agriculture is given. Then there are 4 middle schools or agricultural colleges very finely equipped. There are 21 tillage schools, a veterinary college, an arboricultural college, a dairy high school, a horticultural college, a poultry-farming school, a bee-farming school, a meadow-culture school, 8 schools for vine dressers, 5 State stock farms, an agricultural museum, 80 model demonstration farms, and a large number of winter agricultural schools, attended in 1901 by about 300,000 persons, all of them either cultivators of farms, landed proprietors, or teachers.

The "tillage" or "farming" schools are intended for the education of the peasantry in a way to qualify them as managers of small farms, or as foremen and head laborers on large estates. The course is of two years' duration, and is intensely practical in character.

The five State farms embrace 163,000 acres of land, and have yielded an annual revenue to the Government of almost \$1,500,000. They are devoted chiefly to the breeding and rearing of pure-bred horses and cattle. Each spring, stallions are sent out under the care of soldiers and distributed so as to be available for service in all communities. The number of registered stallions in 1901 owned by the Government was 3,100. There is also a large number of well-bred bulls sold from the stock farms to local communities, the purchase money being raised by a tax levied by the parish council. In 1901, 3,428 bulls were distributed and sold.

The poultry farm is managed in much the same manner as the stock farms referred to. The roosters are exchanged with the peasants for common fowls, as well as are eggs of pure-bred poultry for hatching purposes. Over 7,000 roosters were exchanged by the State farms with the peasants in a single year.

The eighty model farms are conducted chiefly for purposes of demonstration, and are either rented or purchased by the Government. In all cases an expert is placed in charge of each farm, who is under the direction of the agricultural minister, and who cultivates such crops only as serve to enlighten the citizens of the particular community in which the farm is located as to the adaptability of that particular crop to their locality. The farms are only used for a few years, when



they are sold or surrendered, and the stations are moved to other communities. In this way the people in all sections of the country are made acquainted with new and improved methods in agriculture through practical demonstrations.

#### ITINERANT LECTURERS.

In addition to the foregoing elaborate system of instruction in agriculture, there is in operation a system of institutes not unlike those of the United States. During the year 1903-4, 300 agricultural meetings of this character were held in Hungary, at which there were in attendance over 24,000 persons. The meetings were addressed by a corps of 635 lecturers.

The lecture force is divided into two classes. One class is composed of what are known as "itinerant lecturers," and the other as "amateurs." The "itinerant lecturers" are appointed by the agricultural minister. Their duties are to travel through the rural districts and deliver lectures on agricultural matters, making known the newest results of experience and the most approved methods for the improvement of agriculture. These lecturers are employed by the year, and are paid salaries ranging from \$650 to \$750, with from \$75 to \$200 additional for house rent and \$200 annually for traveling expenses.

The "amateurs" are chosen from time to time by the local agricultural societies from among experts and capable landlords, farmers, college men, and county and State officials. They lecture only during the winter and receive but a small compensation in addition to their traveling expenses. These "amateurs" deal more particularly with the practical side of agriculture, and are selected with special regard to the local conditions that exist in the several communities.

Many of the lectures are given on Sundays and holidays. This is the usual rule when daytime meetings are held. During week days the lectures are given in the evenings in town halls and schoolhouses. At times under special circumstances, when the attendance is unusually large, meetings are held in the open air.

Many of the lectures are published by the agricultural minister, and distributed free among those in attendance at the institute meetings. The organization of the courses in the winter schools, together with the selection of the dates and places of the meetings, is intrusted to the local agricultural societies, who are required to present a detailed plan of the course two or three months in advance to the agricultural minister.

In 1903-4 over 2,400 lectures on agricultural subjects were delivered in farmers' institute meetings.

## ITALY.

During the year 1903 about ninety "conferences" of farmers, similar to institute meetings, were held in Italy.

The teachers who give instruction in the conferences are chosen from among the doctors of agrarian science, graduates of the higher agricultural schools of the Kingdom, after a competitive examination held by the administration authorities in the several provinces. The selections, however, must subsequently be approved by the minister of agriculture of the Kingdom.

Applicants for the itinerant chair of agriculture must submit proof of having spent three years in the attainment of the degree of doctor of agricultural science, during which time proper training must have been had in the application of scientific truth to practical agriculture. Preference is given to those who have acquired their training in applied science in a school or institute of agriculture, or in connection with an agricultural experiment station. The applicant must also have undergone an apprenticeship of not less than one year on an agricultural estate. The examination consists of a written test, a reading or conference, a discussion, and a practical test in the field.

The lecturers are officially known as directors of itinerant chairs of agriculture, and have their office addresses in the capitals of the provinces or districts in which they severally reside. They are employed during the entire year, and it is their duty to hold meetings in the towns, villages, and country communities of the province or district to which they are assigned.

The functions of the itinerant chair of agriculture are: To hold conferences of a practical nature in a simple form regarding the various phases of agronomy, animal industry, wine, oil making, etc.; to reply to oral and written questions from private individuals and societies regarding agricultural matters; to institute experimental fields, publish results obtained in such experiments, and assume the direction of such fields; to collect statistics regarding agricultural production in the region covered by the chair; to maintain vigilance against the invasion of parasitic insects and infectious diseases of plants and animals, and to publish circulars in simple language containing practical advice to farmers. They aim also to develop organization among farmers; to establish cooperative societies for the production and sale of agricultural products; to experiment with agricultural machinery; to introduce new plants and better methods of cultivation throughout the provinces; to devise useful plans for the amelioration of agricultural conditions in general, and by verbal consultation and written communications to give expert advice to those who desire it.

Their salaries range from \$700 to \$1,000 per year. Three-fifths of the expense of maintaining itinerant chairs is borne by the province or district and two-fifths by the minister of agriculture.

The total expense for the year 1903 was about \$150,000, of which about \$42,500 was from Government grant through the minister of agriculture and the balance by contributions by the provinces and districts and by the local agricultural organizations.

#### NETHERLANDS.

Each of the eleven provinces of the Netherlands has an agricultural society. There is also in the Kingdom a central council of agriculture, composed of representatives elected by the various provincial societies. This central council, which meets periodically at The Hague, endeavors not only to improve the agriculture of the country directly by offering suggestions to the subordinate provincial societies, but also acts as the adviser in agricultural affairs of the ministry under whose direction the department of agriculture is placed. The wisdom and influence of this central council are recognized by the State to the extent that no important measure affecting agriculture is undertaken by the ministry without the advice and consent of the council.

In each of the provinces there is also a State professor of agriculture, whose duties are to deliver lectures on agriculture, to inspect and direct the State experiment stations, of which there are five; to inspect the winter agricultural courses, and to provide instruction for primary school-teachers who desire to obtain agricultural certificates.

There are two kinds of agricultural winter schools. One is local or permanent, and is maintained by the provincial agricultural society, aided by the State; the other is migratory. The permanent schools send out itinerant teachers, who give courses of instruction to farmers, who meet and organize classes in the various centers much after the manner practiced in Belgium. The courses of study for these movable schools are arranged with a view to the presentation of a single topic and for continuing its discussion until a reasonably thorough acquaintance with the subject has been had by the members of the class. The courses are also sufficiently numerous to embrace the most important subjects of agricultural operation, a separate course and school being organized for each.

The experiment fields and gardens which the Government has established all over the country, and to which reference has been made, are utilized by the itinerant teachers in their instruction work, who visit them frequently with their classes and observe the results of the various experiments as they develop.

These movable schools of Holland have been found to be a most effective means for conveying instruction in agriculture to the homes of the people. They bring the experience and observation of men of large acquaintance with agricultural affairs to the attention and aid of those whose occupation and surroundings have limited their knowledge of farming largely to what has been practiced in their own communities.



Through the aid supplied by the local experiment fields and gardens the itinerant teachers are able also to demonstrate in an ocular, and therefore most convincing way, the truth of many of the theories that they present and to show their adaptability to the conditions that exist in that particular community.

### PRUSSIA.

The methods pursued in imparting agricultural instruction in Prussia are substantially those in use in the other German States. The Prussian system is therefore presented as typical of work of this character throughout the Empire.

In reply to an inquiry respecting the system in use in Prussia corresponding to the farmers' institutes of the United States, the following statement was received from the minister of agriculture and forestry of Prussia:

The different provinces of the Kingdom of Prussia, twelve in number, are provided with chambers of agriculture, established by law as bodies representing the agricultural interests of the province. Under the auspices of these institutions courses of lectures for practical farmers are given each year. The course, as a rule, lasts for from two to five days. The lectures are delivered either where the chambers are located or at some other convenient and accessible place.

The instruction is free to all farmers except that in some rare instances a nominal tuition is required. The lectures are delivered by professors of neighboring schools, by leading practical agriculturists, or by officers of the chamber. The subject treated in the lecture is usually discussed before adjournment.

The preparation and selection of the topics, as well as the direction and carrying out of the course, is entirely in the hands of the chamber of agriculture, and the money paid for the lectures is drawn from their appropriation. The fee for a one-hour discourse is usually from 50 to 100 marks [\$12 to \$24].

The attendance varies considerably in the different provinces, but an average attendance upon a course may be assumed to be about 100. These courses for practical farmers have proved a success and are considered as a very valuable complement to the activities of the different grades of agricultural schools.

In a report on agricultural education in north Germany by Mr. H. M. Jenkins, secretary of the Royal Agricultural Society of England, the system of agricultural education in north Germany by means of itinerant lecturers is very fully outlined. He states that:

They travel through the provinces and discuss the more important agricultural questions at assemblies of farmers convoked for the purpose. After the lecture, follow discussions and an exchange of views and experiences. The lecturers are usually teachers in the winter agricultural schools who give instruction in these schools in the winter and take up the work of traveling lecturers [Wander-Lehrer] during the summer.

The relation existing between the winter agricultural schools and the summer courses of lectures is such that for the proper understanding of their respective functions it is necessary that the character and purpose of each of these classes of schools should be outlined.

The object and character of the winter schools are stated by Mr. Jenkins as follows:

(a) The object of the agricultural winter schools is to continue the general education of young men who have left the elementary schools, as well as to give them instruction in technical subjects bearing upon agriculture, and in agriculture itself. Only those young men are received into these schools whose final certificates from the elementary schools show that they are in a position to profit by the instruction which is given in the winter schools.

(b) The instruction is arranged for two winter courses in such a manner that in the first course the general education is continued and the groundwork for the second course is laid. In the second winter the instruction given is chiefly technical. Thirty-three hours in each week are devoted to the lessons, and the transfer of pupils from the second to the first class depends upon the manner in which they pass their examination at the end of the first winter course.

(c) The instruction begins on the 3d or 4th of November in each year, and concludes with a public examination at the end of the following March. During the remaining seven months the pupils are employed on the farms of their parents or upon other agricultural holdings, and then the director of the school acts as a traveling lecturer and adviser within the district for which the school has been organized.

The following detailed plan of the studies will give a sufficiently accurate idea of the scope of the instruction furnished at these schools:

#### FIRST WINTER.

		Hours per week.
A.—Natural science and agriculture:		
1. Elementary agricultural chemistry (inorganic).....	}	7
2. Mineralogy and soils.....		
3. Zoology, especially of domesticated animals.....	}	7
4. (a) Cattle breeding and rearing.....		
(b) Dairying.....		
5. Physics (mechanics and electricity).....		3
6. Farm management, bookkeeping, etc.....		5
B.—General education:		
7. German language.....		5
8. Arithmetic, land surveying, and leveling.....		4
9. Drawing.....		2
		33

#### SECOND WINTER.

A.—Natural science and agriculture:		
1. Elementary agricultural chemistry (organic).....	}	7
2. (a) Botany and vegetable physiology (general).....		
(b) Agricultural botany and vegetable physiology, including plant diseases, irrigation, and gardening.....		
3. Physics and meteorology (including light and heat).....		3
4. Farm management (capital, labor, and organization).....		5
B.—General education:		
5. German language.....		5
6. Arithmetic, land surveying, and leveling.....		4
7. Drawing.....		2
		33

The ages of the pupils at the winter schools vary from 15 to 30 years, and the school is divided into two classes, the lower of which is regarded as preparatory to the higher in the following winter. In one school referred to by Mr. Jenkins as typical there was the director, who was also the itinerant lecturer of the district, and seven assistant teachers, all employed in teaching about forty pupils. The salary of the director is \$750 per year.

The following set of printed instructions issued by the president of the Agricultural Society of Rhenish Prussia gives in detail the duties of the director of the winter school, and also his work as agricultural itinerant lecturer:

During the five winter months, from the first of November to the first of April, the director is to give instruction in his school in natural science and in agriculture. The remaining seven months he is to spend as itinerant lecturer in his school district.

His services belong entirely to the society, and he is not permitted to undertake any other professional occupation.

In his double capacity of director of the school and traveling lecturer he has to cooperate not only with the several branches of the Agricultural Society of Rhenish Prussia, but also with the agricultural authorities and the school inspectors of his district, and to use every means to specially interest the latter in the school intrusted to his care.

He is expected to visit the burgomasters, the chief officials of the place, the clergy, the schoolmasters, and the principal landowners of his district, with a view of interesting them likewise in the school.

#### THE DIRECTOR AS AGRICULTURAL ITINERANT LECTURER.

During the months in which there is no school the director of the winter school spends his time as agricultural itinerant lecturer in his school district.

(1) After having agreed with the president of the society and with the directors of the several divisions of his school district, he is to travel through the said district to deliver his lectures, to study the existing agricultural conditions, to point out defects to those concerned, to explain their causes, and to specify the ways and means for their improvement.

He is to use his influence toward promoting the execution of such improvements and to see that they are carried out.

He has to pay special attention to the aims which the individual farmers have each in view and to the arrangements made for the attainment of this end, and to note whether aim and arrangement are suited to the circumstances. Further, he must direct his attention to the animals, their breeding and use, the number and fitness of the male animals, the manner of feeding, the stabling and the management of the manure heaps, the condition and extent of the arable land and pasturage in proportion to the live stock, the implements employed and desirable additions, how far artificial manure is used, the draft animals, whether the available capital is sufficient, purchase and rent value per acre according to the quality of the soil, drainage, foot-paths, succession of crops, orchard management, horticulture, market gardening, winter employment, and piecework.

He must encourage parents to send their sons to the winter schools. During his journeys he must endeavor to visit young men who, having gone through their course of studies, have returned home, and encourage them in their work.

(2) As in many instances individual means and powers are insufficient, he must point out to the small proprietors the advantages to be gained by intelligent cooperation, and must give all possible information about the establishment of loan societies, cooperative food-supply associations, societies for the insurance of live stock, vine dressers' societies, agricultural clubs, etc.; he must point out how such institutions can and must be created by the farmers themselves and the advantages that may accrue from them.

(3) He must assist in controlling the proper application and observance of the conditions upon which the subsidies paid by the State and the society are granted, and for this purpose he will receive a list of the same from the secretary-general and must state the result in his yearly report.

He must explain to the agricultural population the objects and usefulness of the institution, and the protection and advantage it offers, such as laboratories for chemical analyses and experiments, stations where bulls, boars, and stallions are to be found, cattle shows and prizes, institutions for the trial of machines and implements, agricultural clubs, exhibitions, etc., and encourage their participation in these organizations.

(4) He must give theoretical and practical courses of instruction at the proper season on beehives and the proper rearing of bees, and on fruit trees and vines and their treatment, and also on agricultural bookkeeping on a selected farm. He must appoint a stated time for these lectures and issue a public invitation to all to attend them.

(5) In his annual or in separate reports he is to make suggestions as to the means which should be adopted on the part of the society for encouraging such improvements as he shall have found to be necessary.

(6) He must visit the existing agricultural schools and improvement clubs on his journeys and register and report their condition, hold conferences with the directors, and use his influence toward the erection of new clubs.

(7) He has to keep a diary of everything important that he has observed and done during his journeys, and include a statement of the same in his report to the president of the society.

The itinerant lecturer is to have a month's holiday from the 15th of July to the 15th of August.

## RUSSIA.

A statement of the methods employed in reaching the rural population of Russia with agricultural information has been furnished by the Russian minister of agriculture in the following communication:

Agricultural information is disseminated among the farming population of Russia by means of special lectures upon the most important local problems of each locality, and by means of systematic courses of instruction in the schools, including full details in concise form, upon some one branch of agricultural science. Recently information concerning agricultural subjects has been spread among the farming population by means of itinerant teachers. By this means the farmers are directly met and aided, and the instructors are also enabled to unite with their technical knowledge of agricultural science a practical acquaintance and understanding of the agricultural and social conditions and needs that exist among the people to whom their instruction is addressed. Such an arrangement has made possible an unusually wide distribution of agricultural information.

In these movable courses of lectures the attending farmers acquaint themselves with recent investigations concerning the various branches of agricultural science, and a similar fund of information is made available through courses given by the teachers to pupils in the primary agricultural schools of the various communities.



As a rule, the themes selected by the lecturers and teachers are such as are calculated to exert an influence in the further agricultural development of the locality concerned. The persons concerned in giving these lectures and courses of instruction are agronomists, teachers in agricultural institutions, agricultural inspectors, specialists, and instructors in agricultural branches in various educational institutions. Systematic courses of lectures and instruction are given in practical gardening, raising field crops, etc. The teachers and lecturers receive for their work suitable compensation from the department of agriculture.

Agricultural courses for common school pupils were organized in 1903. At this time a special committee was appointed by the Government for the purpose of preparing a programme of courses and instruction in agriculture, together with a list of themes to be discussed, books, charts, and other material to assist in instruction. During that year 20 educational institutions offered courses in agriculture, and 450 persons were enrolled as students in these courses.

The general administration of "outside" or "itinerant" class work in agricultural subjects is a function of the department of agriculture in St. Petersburg.

### SWEDEN.

Provision for imparting technical instruction in agriculture in Sweden, 75 per cent of whose population is engaged in this occupation, is made through schools in the several districts organized and equipped for the special purpose. The establishing of a large number of stationary schools of agriculture for adults in preference to the itinerant system seems to have been decided upon after a careful examination of this kind of instruction in other countries, which accounts for the absence of the movable school.

Three distinct classes of high schools have been organized and are in operation in Sweden: People's high schools for men; people's high schools for women, and high schools for peasants. The first of these, or the people's high schools for men, was opened in 1868. As the title suggests, they are intended for men, the average age at which pupils enter being 21 or 22 years, although the minimum age for admission is 18.

The people's high schools at first were supported entirely by private subscription, but later were aided by the Government with grants not exceeding \$800 for schools having a one-year course, and not more than \$1,350 for schools having a two-year course, the latter sum being given on condition that at least one-fourth of the pupils of the first-year course come back the second year.

The people's high schools are all located in the country, and their popularity is evidenced by their number, which in 1903 had reached 872. The lectures and classes of these schools occupy about twenty-two weeks, the school terms being arranged to come between the months of November and April, a season of comparative cessation of field work.

Each course takes for its completion 955 hours of recitation or lectures.

The subjects taught in the school at Hvilan, as reported by Mr. J. V. Jonsson, head master of the people's high school at Kafvesta, are:

Swedish, 120 hours; Scandinavian history, 80 hours; general history and geography, 100 hours; history of literature, 40 hours; national economy, 20 hours; political and municipal science, 50 hours; physics, botany, zoology, and geology, 45 hours; agricultural chemistry, 50 hours; anatomy and hygiene, 10 hours; geometry, 20 hours; arithmetic, 100 hours; bookkeeping and practical training, 70 hours; drawing and architecture, 90 hours, and gymnastics, 100 hours.

The course, it will be seen, is constructed with a view to affording information upon such topics as enter into a general education.

It was found after several years of trial that the pupils who entered the people's high schools were for the most part sons of farmers and were themselves farmers. It soon became evident not only that one winter was too short a period in which to give the training needed by these young men, but also that a more technical course of study was needed to equip them for their work. Accordingly, in 1882 a commission was appointed by the King to prepare a scheme for the organization of agricultural instruction in the Kingdom, which resulted in the establishment of a second class of schools, called high schools for peasants. These schools were intended to give theoretical instruction in agriculture to young men over 18 years of age who have gone through the people's high school. For admission to this school they must also have prosecuted farming for at least one year.

The high schools for peasants are with a few exceptions annexed to the people's high schools, and are under the immediate control of the agricultural department. They are aided by the State, but are required at the same time to provide an equal sum from fees and other local sources. The course extends over a period of 20 months.

The practical training of the students is usually accomplished through the school authorities finding positions for them as laboring pupils on some large estate, the proprietor supplying them with board and lodging and a small compensation for clothes. Sometimes they secure positions as under stewards on plantations.

The courses of study in these schools are chiefly agricultural. The subjects given in one at Kafvesta in 1903 were:

Physics, 24 hours; chemistry, 38 hours; botany, 29 hours; zoology, 26 hours; geology, 40 hours; science of agricultural practice, 84 hours; agricultural economy, 12 hours; care of domestic animals, 51 hours; veterinary science, 17 hours; dairying, 10 hours; forestry, 8 hours; building construction, 8 hours; geometrical drawing, 58 hours; surveying, 71 hours; geometry, 20 hours; arithmetic, 60 hours; Swedish, 60 hours; municipal expenses, 19 hours; composition, 30 hours; debates, 36 hours; bookkeeping, 60 hours; singing, 40 hours, and gymnastics, 70 hours; making a total of 871 hours.

These schools, first established in 1886, have increased until in 1903 they numbered 239. There are 30 districts in Sweden. In all but seven

people's high schools have been organized, and the effort has been to have them so distributed and sufficiently numerous as to make them easily accessible to young men in all parts of the Kingdom.

It is proposed to add "special" courses for small farmers who can not attend school for a whole winter, but who would be greatly benefited by having the opportunity to enter upon a brief course of study to last only a few weeks. In connection with these special courses and as a part of the system of instruction small farms of only a few acres are to be attached to the schools as demonstration farms. The purpose is to conduct them not for experimentation, but as illustrations or demonstrations of the best methods of successful agricultural production. These "model" farms serve to show how a small farm can be successfully managed, and thus encourage the students to purchase and conduct similar farms for themselves.

High schools for women were undertaken in 1869 as separate institutions, but owing to the brief period, only two or three months in the year during which they could be in operation, the project failed. Later these schools were organized in connection with the high schools for peasants and the people's high schools, as a summer course, beginning at the close of the men's winter courses and extending over about three months, May, June, and July. The studies were of a general character during the first year, supplemented by courses in practice, such as cookery, canning, weaving, gardening, poultry keeping, etc. This practical course is made a special feature in the work of the second year.

In 1903 636 high schools for women had been established and were in successful operation.

The system, therefore, that has been adopted in Sweden, providing for the instruction of adults in agriculture, consists in establishing a large number of high schools in which agriculture is taught, and which are in session for men for five months and for women three months, the men attending in the winter during the period of suspension of farming operations and the women during the spring and early summer after the men's sessions have ended.